Instructions–Parts List

HIGH PRESSURE

Back Pressure Regulator

306860N
ENG

For use in a high pressure spray circulating system to regulate back pressure to gun(s) and maintain proper pressure for circulation. For professional use only.

Not approved for use in European explosive atmosphere locations.

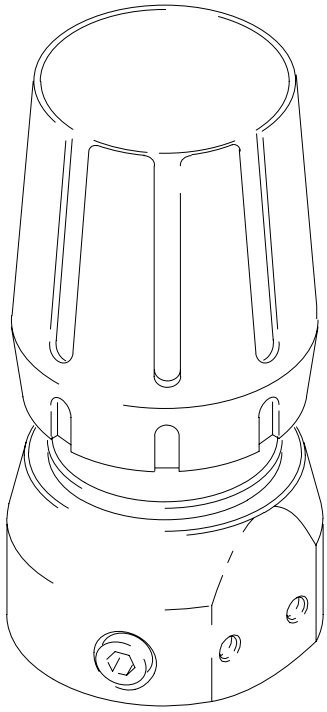
CARBON STEEL REGULATORS

Part No. 206819, Series F
3000 psi (21 MPa, 207 bar) Maximum Working Pressure
1000–3000 psi (7–21 MPa, 70–207 bar)
Regulated Fluid Pressure Range

Part No. 222405, Series B
3000 psi (21 MPa, 207 bar) Maximum Working Pressure
0–1000 psi (0–7 MPa, 0–70 bar)
Regulated Fluid Pressure Range

STAINLESS STEEL REGULATOR

Part No. 238926, Series A
3000 psi (21 MPa, 207 bar) Maximum Working Pressure
1000–3000 psi (7–21 MPa, 70–207 bar)
Regulated Fluid Pressure Range



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Important Safety Instructions
Read all warnings and instructions in this manual.
Save these instructions.

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CE

PROVEN QUALITY. LEADING TECHNOLOGY.

Symbols

Warning Symbol

⚠ WARNING

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ CAUTION

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

⚠ WARNING

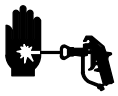
INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are not sure, call your Graco distributor.
- Do not alter or modify this equipment.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. Refer to the **Technical Data** on page 11 for the maximum working pressure of this equipment.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below –40°F (–40°C).
- Wear hearing protection when operating this equipment.
- Do not lift pressurized equipment.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

⚠ WARNING



INJECTION HAZARD

Spray from the gun, leaks or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin might look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Keep your hands away from the end of the drain valve when opening it.
- Lock the gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 7 if the spray tip clogs and before cleaning, checking or servicing the equipment.
- Follow the **Pressure Relief Procedure** on page 7 before removing the regulator's adjusting knob.
- Do not pressurize the system when the back pressure regulator's adjusting knob is removed.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. Do not repair high pressure couplings; you must replace the entire hose.
- Use only Graco approved hoses. Do not remove the spring guard that is used to help protect the hose from rupture caused by kinks or bends near the couplings.

TOXIC FLUID HAZARD

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.

- Know the specific hazards of the fluid you are using.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.

Installation

The Typical Installations shown in Figs. 1 and 2 are only guides in designing a system. For assistance in designing a system to meet your needs, contact your Graco distributor.

Installing the Back Pressure Regulator

1. Install the back pressure regulator (A) in the spray gun return line (D). See Figs. 1 and 2.

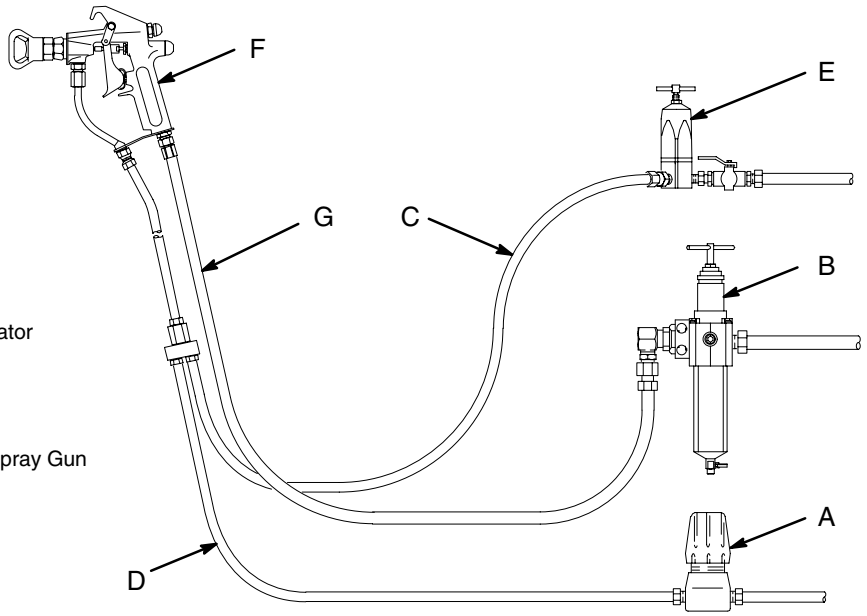
2. Connect fluid lines to the 1/4 npt(f) inlet and outlets of choice. Make sure the fluid flow agrees with the IN and OUT markings on the regulator housing.

3. Install the accessory gauge, if used, in the optional inlet.

4. If more than one spray station is used, install a back pressure regulator (A) in the circulating line (H) after the last spray station to maintain proper system pressures. Refer to Fig. 2, for multiple circulating spray stations.

NOTE: The two 1/4–20 tapped mounting holes on the side of the regulator housing are for mounting the regulator when flexible fluid lines are used.

Installation



KEY

A Back Pressure Regulator
B Air Filter/Regulator
C Fluid Supply Line
D Fluid Return Line
E Fluid Regulator
F Air-Assisted Airless Spray Gun
G Air Line

SINGLE CIRCULATING SPRAY STATION

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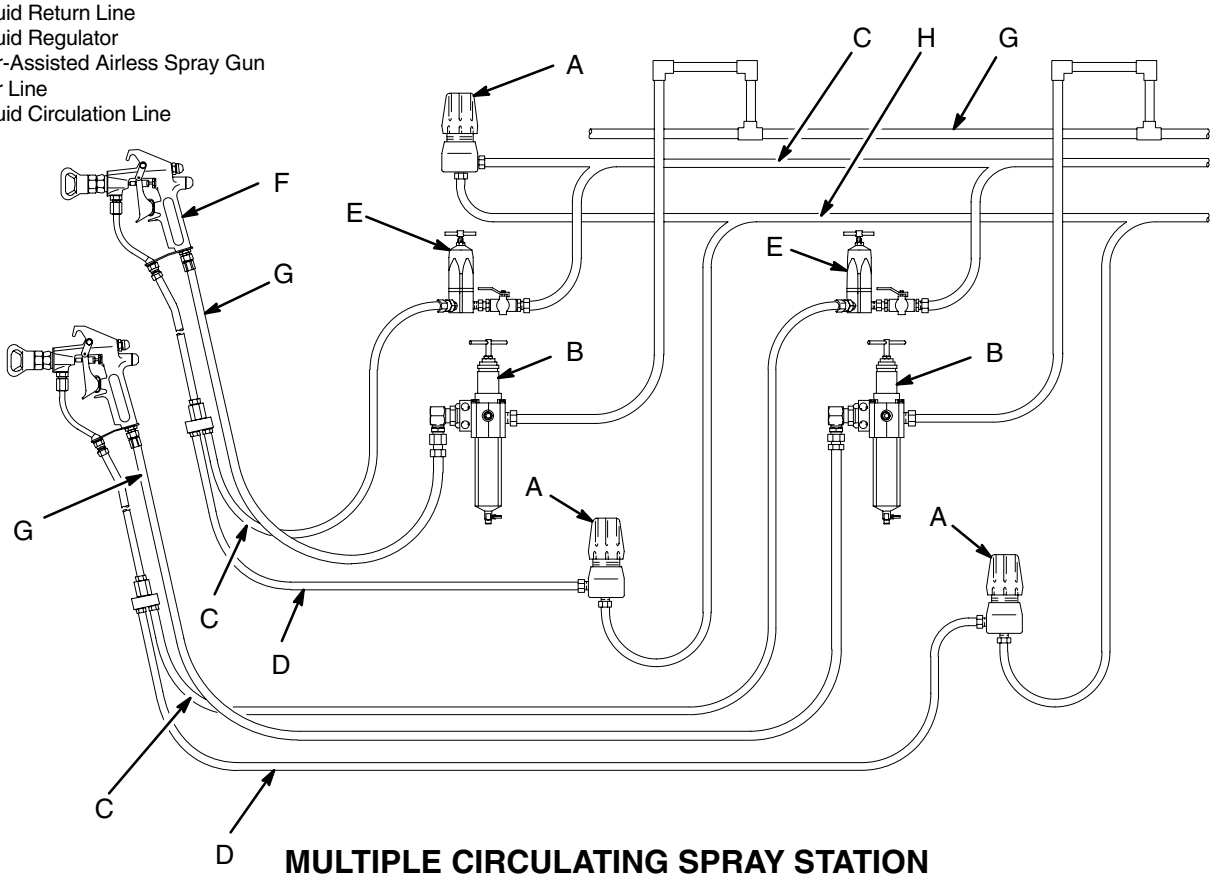
Fig. 1

KEY

A Back Pressure Regulator
B Air Filter/Regulator
C Fluid Supply Line
D Fluid Return Line
E Fluid Regulator
F Air-Assisted Airless Spray Gun
G Air Line
H Fluid Circulation Line



MULTIPLE CIRCULATING SPRAY STATION

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Fig. 2

Notes

Operation

Pressure Relief Procedure

⚠ WARNING

INJECTION HAZARD
The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray tip.

1. Lock the gun trigger safety.
2. Close the bleed-type master air valve (required in your system).
3. Unlock the gun trigger safety.
4. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.
5. Lock the gun trigger safety.
6. Open the drain valve (required in your system), having a container ready to catch the drainage.
7. Leave the drain valve open until you are ready to spray again.

If you suspect that the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, ***very slowly*** loosen the tip guard retaining nut or hose end coupling and relieve pressure gradually, then loosen completely. Now clear the tip or hose.

Adjusting the Regulator

The back pressure regulator controls pressure ahead of the regulator intake.

To adjust the regulator, first, back the adjusting knob out until there is no spring pressure. Then, turn the knob *clockwise* to increase pressure.

Adjust the pump air pressure and the back pressure regulator for the best spraying combination and proper circulation of fluid.

Record the regulator and air pressure settings for future reference. The regulator cylinder has exterior markings (set points 1 to 8) for repeat settings.

Maintenance

⚠ WARNING

COMPONENT RUPTURE HAZARD
To reduce the risk of serious bodily injury, including fluid injection or splashing in the eyes or on the skin, *always* follow the **Pressure Relief Procedure** on page 7 before adjusting, cleaning, repairing, or removing the regulator from the system.

Never pressurize the system with the back pressure regulator adjusting knob removed.

Never completely remove the adjusting knob when system pressure is present.

Flushing

Flush the regulator whenever the rest of the system is flushed. Before flushing, open the regulator by turning the adjusting knob *counterclockwise* until the spring tension is relieved.

NOTE: Do not allow paint or solvent to set in the system for a long time. Fluid could dry on the piston, causing leakage at the piston packing. If leakage occurs, disassemble and clean the regulator.

Cleaning

Regular cleaning and inspection, and lubrication of the regulator are necessary to keep the regulator working properly.

1. Open the regulator and follow the **Pressure Relief Procedure** on page 7.
2. Remove the back pressure regulator from the system.
3. Disassemble the regulator, referring to the parts drawing on page 9. Clean and inspect all parts.

⚠ CAUTION

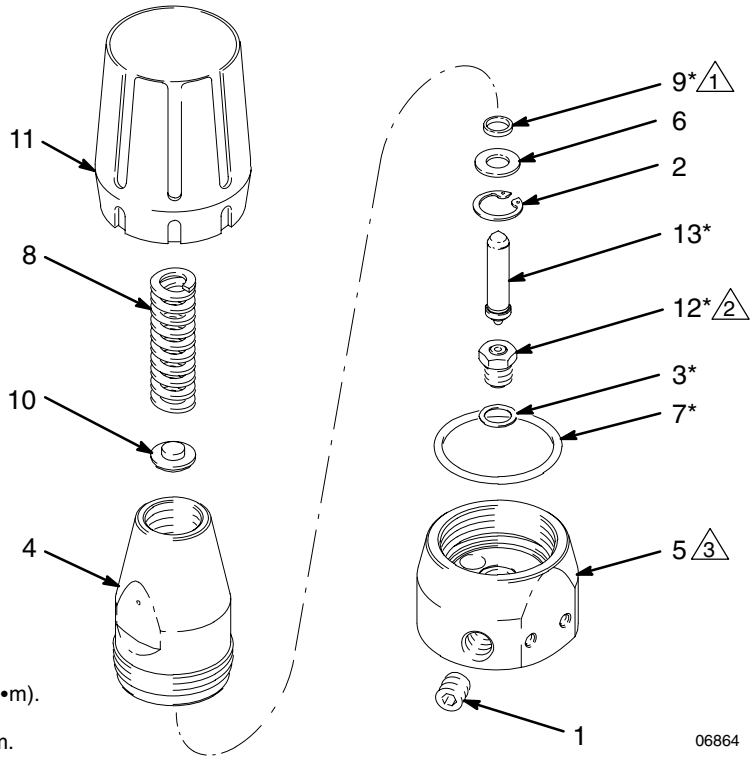
Use special care when handling the hard carbide portions of the piston (13) and seat (12). Damage will cause poor operation and leakage.

Repairing

Reference numbers marked with an asterisk (for example, 3*) are included in the repair kits, which may be purchased separately. For Models 206819 and 222405, order Repair Kit 220135. For Model 238926, order Repair Kit 239000. See page 9.

1. Lubricate the piston packing (9*), piston (13*), and spring locater (10) with lithium base grease.
2. Place the washer (6) over the pointed end of the piston (13*).
3. Place the packing (9*), with its lips facing down, over the pointed end of the piston (13*) and against the washer (6).
4. Insert the piston (13*) into the bottom of the cylinder (4) and gently work it into place.
5. Reassemble the remaining parts in reverse order of disassembly. Make sure the gasket (3*) and o-ring (7*) are in place. Torque the regulator seat (12*) into the housing (5) to 175 to 200 in-lb (20 to 22 N•m). Over-tightening could break off the hex portion of the seat.

Parts



1 Install with lips down.

2 Torque to 175 to 200 in-lb (20 to 22 N•m).

3 Model and Series stamped on bottom.

Model 206819, Series F

Model 222405, Series B

Ref No.	Part No.	Description	Qty
1	100721	PLUG, pipe; hex socket; 1/4 npt	2
2	101954	RING, int. ret.; 0.75 in. (19 mm) housing dia.; cadmium plated	1
3*	150670	GASKET, copper	1
4	166982	CYLINDER, regulator	1
5	177124	HOUSING, regulator	1
6	171885	WASHER, back-up; acetal homopolymer	1
7*	166985	O-RING; PTFE	1
8	166986	SPRING, helical compression; yellow color-coded *(Model 206819 only)*	1
	501511	SPRING, helical compression; blue color-coded *(Model 222405 only)*	1
9*	111796	PACKING, “U” type; PTFE	1
10	166988	LOCATOR, spring	1
11	167443	KNOB, adjusting	1
12*	204523	SEAT, regulator	1
13*	238932	PISTON, regulator	1

* *These parts are included in Repair Kit 220135, which may be purchased separately.*

Model 238926, Series A

Ref No.	Part No.	Description	Qty
1	101970	PLUG, pipe; hex socket; 1/4 npt	2
2	113751	RING, int. ret.; 0.75 in. (19 mm) housing dia.; stainless steel	1
3*	189817	GASKET; acetal homopolymer	1
4	191840	CYLINDER, regulator	1
5	191841	HOUSING, regulator	1
6	171885	WASHER, back-up; acetal homopolymer	1
7*	166985	O-RING; PTFE	1
8	166986	SPRING, helical compression; yellow color-coded	1
9*	111796	PACKING, “U” type; PTFE	1
10	166988	LOCATOR, spring	1
11	167443	KNOB, adjusting	1
12*	238933	SEAT, regulator	1
13*	238932	PISTON, regulator	1

* *These parts are included in Repair Kit 239000, which may be purchased separately.*

Notes

Accessories

Use Only Genuine Graco Parts and Accessories

Fluid Pressure Gauges

Attaches to optional regulator outlet.
2 in. (51 mm) dial.

102397 0–3000 psi (0–21 MPa, 0–207 bar MPa)
1/4 npt(m) center back fitting

101696 0–1000 psi (0–7 MPa, 0–70 bar)
1/4 npt(m) bottom fitting

UHMW Polyethylene U-Type Packing 108317 (included in Repair Kit 220135)

Use instead of 111796 (ref. no. 9), with abrasive fluids.

Compression Springs

501510 Converts both models to 1000–2000 psi (7–21 MPa, 70–138 bar) range.
Red color-coded.

501511 Standard on Model 222405.
Converts Model 206819 to 0–1000 psi (0–7 MPa, 0–70 bar) range.
Blue color-coded.

166986 Standard on Model 206819.
Converts 222405 to 2000–3000 psi (14–21 MPa, 138–207 bar) range.
Yellow color-coded.

NOTE: Spring 166986 (supplied with Model 206819) is recommended for 2000–3000 psi (14–21 MPa, 138–207 bar).

Technical Data

Category	Data
Maximum Fluid Inlet Pressure	3000 psi (21 MPa, 207 bar)
Regulated Fluid Pressure Range	*Models 206819 and 238926:* 1000–3000 psi (7–21 MPa, 70–207 bar) *Model 222405:* 0–1000 psi (0–7 MPa, 0–70 bar)
Normal Factory Preset Range	*Models 206819 and 238926:* 2000–3000 psi (14–21 MPa, 138–207 bar) *Model 222405:* 500–1000 psi (3.4–7 MPa, 34–70 bar)
Maximum Flow Rate	3.5 gpm (13.25 liters/min) with 70 centipoise fluid at 75°F (23°C)
Fluid Inlet	1/4 npt(f)
Fluid Outlet (two)	1/4 npt(f)
Wetted Parts	*Models 206819 and 222405:* Tungsten carbide, PTFE, acetal homopolymer, cadmium and zinc-plated steel, stainless steel, and chrome-plated stainless steel *Model 238926:* Stainless steel, Tungsten carbide, PTFE, acetal homopolymer
Canadian Registration Number (CRN): Alberta – 0C04874.52 Ontario – 0C4874.5R1	*Models 206819, 238926, and 222405*

Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations..

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

FOR GRACO CANADA CUSTOMERS

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Graco Information

For the latest information about Graco products, visit www.graco.com.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the distributor closest to you:
Phone: 612–623–6921 or **Toll Free:** 1–800–328–0211 **Fax:** 612–378–3505

All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 306860

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